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EXAMINER
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ART UNIT	PAPER NUMBER
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185

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DATE MAILED: 04/08/91

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined. ☐ Responsive to communication filed on \_\_\_\_\_. ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- |                                                                                         |                                                                                 |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input checked="" type="checkbox"/> Notice re Patent Drawing, PTO-948.       |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.                 | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.     | 6. <input type="checkbox"/> _____                                               |

Part II SUMMARY OF ACTION

1. ☒ Claims 1 to 44 are pending in the application.  
Of the above, claims 10 to 16, 17 to 22, 24 to 31, 33, 34, 36 to 41, and 44 are withdrawn from consideration.

2. ☐ Claims \_\_\_\_\_ have been cancelled.

3. ☐ Claims \_\_\_\_\_ are allowed.

4. ☒ Claims 1 to 9, 17, 18, 23, 32, 35, 42, and 43 are rejected.

5. ☐ Claims \_\_\_\_\_ are objected to.

6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

Restriction to one of the following inventions is required under 35 U.S.C. § 121:

I. Claims 1 to 9, 17, 18, 23, 32, 35, 42, and 43, drawn to a 2,4-D monooxygenase gene, classified in Class 536, subclass 27.

5 II. Claims 10 to 16, 19 to 21, 24, 25 to 30, 33, 36, and 44, drawn to a mutant of a 2,4-D monooxygenase gene, classified in Class 435, subclass 172.1.

10 III. Claims 22, 31, and 34, drawn to a method of identifying a vector containing a 2,4-D monooxygenase gene, classified in Class 935, subclass 82.

IV. Claims 37 to 41, drawn to an antibody or fragment which specifically binds to a 2,4-monooxygenase, classified in Class 530, subclass 387.

15 The inventions are distinct, each from the other because of the following reasons:

Invention IV is not chemically or structurally related to Inventions I, II, and III and, if patentable, would support a separate patent.

20 Inventions III and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (M.P.E.P. § 806.05(f)). In the instant case  
25 the product claimed can be made by a materially different process

such as through the use of nucleic acid probes as disclosed in the instant application.

Inventions II and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (M.P.E.P. § 806.05(h)). In the instant case the product claimed can be used in a materially different process such as in nucleic acid hybridizations.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Anthony Zelano on 29 March of 1991 a provisional election was made with traverse to prosecute the invention of group I, claims 1 to 9, 17, 18, 23, 32, 35, 42, and 43. Affirmation of this election must be made by applicant in responding to this Office action. Claims 10 to 16, 19 to 22, 24 to 31, 33, 34, 36 to 41, and 44 are withdrawn from further consideration by the Examiner, 37 C.F.R. § 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in

compliance with 37 C.F.R. § 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a diligently-filed petition  
5 under 37 C.F.R. § 1.48(b) and by the fee required under 37 C.F.R. § 1.17(h).

Claims 1, 2 to 9, 23, 32, 35, 42, and 43 are rejected under 35 U.S.C. § 112, first paragraph, as the disclosure is enabling only for claims limited to a 2,4-D monooxygenase gene isolatable  
10 by the manner disclosed in the instant specification or having a defined degree of sequence homology with the gene described in the instant specification. The specification is not enabling for the isolation or production of any 2,4-D monooxygenase gene from any source. See M.P.E.P. §§ 706.03(n) and 706.03(z).

15 The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

20 A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.  
25 Patentability shall not be negated by the manner in which the invention was made.

30 Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same

person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various  
5 claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not  
10 commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Claims 1 to 8, 17, 23, 32, 42, and 43 are rejected under 35 U.S.C. § 103 as being unpatentable over Amy et.al.(1R) in view of Beguin et.al.(1S). The Amy reference clearly describes the  
15 construction of the plasmid PSA122 containing a 2,4-D monooxygenase gene from an aquatic bacteria that is phenotypically similar to Alcaligenes eutrophus. The Amy reference differs from the instant invention only in the degree of definition and refinement of the cloned gene. The Beguin  
20 reference discloses that the subcloning and sequencing of a cloned gene was a routine procedure in the art of molecular biology at the time the instant invention was made. In light of the Amy disclosure one of ordinary skill would have found the cloning of a 2,4-D monooxygenase gene from an aquatic bacteria  
25 for purposes of bioremediation through recombinant DNA methods to

be an obvious experimental design choice at the time of the instant invention, and to further define the cloned gene by subcloning and sequencing would have been routine in the art as indicated by the Beguin reference.

5           Claims 9, 18, and 35 are rejected under 35 U.S.C. § 103 as being unpatentable over Amy et.al. and Beguin et.al. as applied to claims 1 to 8, 17, 23, 32, 42, and 43 above, and further in view of the Carey et.al. Patent (1A). Claims 9, 18, and 35 are further limiting in that they place the claimed 2,4-D  
10           monooxygenase gene under the control of a heterologous promoter i.e. in an expression vector. The Carey Patent is used here to exemplify that the construction and use of expression vectors for the regulation of exogenous genes was a routine practice at the time of the instant invention and to used such a vector to  
15           control the expression of a cloned 2,4-D monooxygenase gene would have been obvious to an artisan of molecular biology.

Any inquiry concerning this communication should be directed to John D. Ulm at telephone number (703) 308-1906.



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SUPERVISORY PATENT EXAMINER  
ART UNIT 185